CENTRO DE INVESTIGACIÓN Y TECNOLOGÍA AGROALIMENTARIA DE ARAGÓN

Local or organic: complement or substitutes labels? A consumers preferences study

Azucena Gracia – CITA de Aragón
Jesús Barreiro-Hurlé –FAO of the UN
Belinda López-Galán – CITA de Aragón

Presentation Outline

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1. Organic versus local: consumers perspective

Organic foods are:

- Healthier
- Tastier
- More environmental friendly
- More animal welfare friendly
- Supporting the local economy

Local foods have:

- higher quality (fresher, tastier, healthier, safer, etc.);
- higher environmental sustainability
- higher social and economic justice (including the support of local economies, community stability, etc.).

2. Objective

Research questions:

1) which of the two claims (organic or local) do consumers value more?

2) are organic and local origin claims substitutes or complements?

3. Experimental procedure

A **choice experiment** with cheap talk was used for two reasons:

- the similarity of the choice task asked to participants to their real purchase decisions
- its ability to value multiple attributes simultaneously allowing the assessment of the joint valuation of two claims (if a main plus two way interactions design is used)

In our case, **Organic plus Local claims**

3. Experimental procedure

Experimental design:

- Selected product: a package of half-dozen eggs
- Selected attributes and levels:

  Price: 0.75; 1.25; 2.0 and 2.5 € per package

  Production system: Caged, Barn, Free-range and Organic

  Place of production: Local (Province), Regional (Comunidad Autónoma), Country (Spain) and Europe

3. Experimental procedure

Choice set design:

- Street and Burgess (2007). Main effects plus two way interactions
- For, 3 attributes with 4, 4 and 4 levels and 2 options
- 128 choice sets were obtained (D- efficiency 96.4%) randomly split into different blocks
- Participants faced different choice set scenarios and they had to choice between two products with different attributes and prices plus the no-buy option

4. Model specification

Lancaster utility function and Latent Class model approach

$$U_{njt} = ASC + \beta_1 PRICE_{njt} + \beta_2 BARN_{njt} + \beta_3 FREERANGE_{njt} + \beta_4 ORGANIC_{njt} + \beta_5 LOCAL_{njt}$$
$$+ \beta_6 REGIONAL_{njt} + \beta_7 COUNTRY_{njt} + \beta_8 FREERANGE\&LOCAL_{njt} + \beta_9 ORGANIC\&LOCAL_{njt} + \varepsilon_{njt}$$

where *n* is the number of respondents,
j denotes each of the three options available in the choice set and *t* is the number of choice occasions.

ASC: a dummy variable indicating the designed alternatives.
PRICE: the price levels faced by consumers.
BARN, FREERANGE and ORGANIC: Effect coded variables
LOCAL, REGIONAL and COUNTRY: Effect coded variables
FREERANGE&LOCAL and ORGANIC&LOCAL were defined as the interactions between the free-range and organic production systems with the local origin

Error: unobserved random term that is distributed following an extreme value type I (Gumbel) distribution, i.i.d. over alternatives and independent of β and the attributes that is known by the individual but unobserved and random from the researcher's perspective which motivates different choice models.

5. Data collection

In two medium-sized Spanish towns: **Cordoba, Zaragoza.**

January **2009**.

Target respondents were the **primary food buyers** in the household and only **households who consumed eggs** at least occasionally were finally included in the sample.

In total, **803 consumer** randomly selected by age and town district were interviewed face-to-face.

5. Data collection

Characteristic	Variable definition	(% unless stated)
Sample size (individuals)		803
Age (mean years of age)	AGE (Continuous)	45.5
20 to 34 years old		28.3
35 to 50 years old		31.1
51 to 65 years old		26.0
More than 65 years old		14.6
Household size (mean number of members)	HSIZE (Continuous)	3.3
Net Household income		
High (>= 2,501€ month) (1=Yes)	HINCOME (Dummy)	34.0
Medium (Between 600€ and 2,500€ month)		61.4
Low (<=600€ month)		4.6
Educational Level		
Elementary education		25.8
High School education		37.9
Higher education (1=Yes)	HIGH_EDUCATION (Dummy)	36.3
Gender		
Male		45.5
Female (1=Yes)	FEMALE (Dummy)	54.5

6. Results: Estimated parameters

Latent Class Model with two classes

Variable	One-segment model		Latent classes: Segment 1		Latent classes: Segment 2	
	Coef.	*z-ratio*	*Coef.*	*z-ratio*	*Coef.*	*z-ratio*
ASC	3.075	41.13 **	5.730	34.42 **	1.494	9.61 **
PRICE	- 1.598	-38.11 **	- 1.563	-29.28 **	- 3.219	-21.49 **
FREERANGE	0.239	5.14 **	0.389	6.35 **	0.781	6.71 **
ORGANIC	0.123	2.83 **	0.209	3.86 **	1.100	11.29 **
LOCAL	0.479	11.16 **	0.721	12.47 **	0.335	2.35 **
REGIONAL	0.121	2.57 **	0.246	3.62 **	0.151	1.09
FREERANGE& LOCAL	-0.114	-2.16 **	- 0.106	-1.71 *	-0.373	- 2.12 **
ORGANIC& LOCAL	0.076	1.51	0.101	1.71 *	0.412	2.25 **
Class probability			0.763		0.237	

Class function	*Coef.*	*t-ratio*
CONSTANT	- 0.046	- 0.19
HIGH_EDUCATION	0.393	2.04 **
KNOW_ORGANIC	0.798	4.46 **

6. Results: Estimated parameters

- ✓ **Segment 1: 76%** consumers - **Higher** education and organic knowledge

- ✓ **Segment 2: 24%** consumers - **Lower** education and organic knowledge

  - FREERANGE, ORGANIC, LOCAL and REGIONAL estimated parameters are statistically significant and positive

  - FREERANGE&LOCAL estimated parameters are statistically significant and negative

  - ORGANIC& LOCAL estimated parameters are statistically significant and positive

6. Results: Willingness to pay

	One-segment	Segment 1 "Local lovers"	Segment 2 "Organic lovers"
% of respondents		76.3	23.7
Main WTP			
FREERANGE	0.30	0.50	0.48
ORGANIC	0.16	0.26	0.68
LOCAL	0.60	0.92	0.20
REGIONAL	0.16	0.32	0.10
Total WTP			
FREERANGE& LOCAL	0.83	1.35	0.56
ORGANIC& LOCAL	0.81	1.24	1.01

6. Results: Willingness to pay

- ✓ Consumers were willing to pay a **positive** premium for free-range, organic, locally or regionally produced eggs.
- ✓ However, the premium to pay for those products **differs** by segment of consumers.
- ✓ The **first segment** presented a **higher** willingness to pay for **origin related attributes** than the second segment
- ✓ On the contrary, the main marginal **WTP values for organic** eggs were **higher for segment 2** than for segment 1.
- ✓ Therefore, **segment 1** can be denoted as **“local lovers”** and **segment 2** can be named as **“organic lovers”.**

6. Results: Willingness to pay

- ✓ The **response** to our **first research question** is that **the majority of consumers value the local label more than the organic label** (i.e. segment 1).

- ✓ However, there is a smaller group of consumers (segment 2) who value the organic label more.

- ✓ Free-range and locally claims can be considered partially substitutes because:

  Total marginal WTP values for both claims were lower than the sum of individual WTP values for each of them indicating that providing both claims in eggs had a negative impact on the joint consumers' valuation for these two claims.

6. Results: Willingness to pay

- ✓ Organic and local claims can be considered complements because

Total marginal WTP values for both claims were higher than the sum of individual WTPs indicating that providing both claims had a positive impact on the joint consumer valuation for the two labels.

- ✓ This last results respond to our second research question of the paper.

7. Conclusion

- ✓ The least valued eggs for consumers in both segments are those produce in cages and in Europe as well as in barn and Spain.

Relative to this product,

- ✓ Localvore consumers value the free-range and locally produce eggs the most, even when they consider that part of the attributes reflected by each claim is already captured in the other (negative interaction term).

- ✓ Organic lovers consumers value the organic and locally produced eggs the most.

7. Marketing implications

Taken into account the WTP values and the size of the segments

- ✓ The best marketing strategy for eggs producers could be to market the eggs labelled with both, the free-range and the locally produced claims because a majority of consumers were willing to pay a higher extra price for eggs carrying out both claims,

- ✓ Although the final decision must take into account the cost of implementing both claims.

Thanks